# DECwindows/X11 Server for VWS Installation and User's Guide

Order Number: AA-MM21A-TE

This software provides current VWS users with a glimpse at the DECwindows environment and enables limited DECwindows development for users who continue to use VWS as their main window system.

| | |
|---|---|
| **Operating System Version:** | VMS V5.1 or V5.2 |
| **Software:** | VWS V4.2 |
| **Software:** | DECwindows/X11 Server for VWS V1.0 |

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# Contents

# Preface

This document provides installation instructions and user information for the DECwindows/X11 Server for VWS.

## Intended Audience

This manual is for VWS graphics programmers and users who want to learn about the DECwindows environment.

## Document Structure

This document consists of five chapters and two appendixes, as follows:

- Chapter 1—Introduction
- Chapter 2—Overview of DECwindows/X11 Server
- Chapter 3—VMS Overhead
- Chapter 4—Restrictions
- Chapter 5—Using Native DECwindows
- Appendix A—Files Installed by VWSDECW010
- Appendix B—Sample Installation

## Associated Documents

The following manuals are related to this document:

- *VMS Workstation Software Release Notes*
- *VMS Workstation Software Installation Guide*
- *Using the UIS to DDIF Converter*
- *VMS Workstation Software Guide to Converting UIS Applications to DECwindows Format*
- *VMS Workstation User's Guide*
- *VMS Workstation Graphics Programming Guide*
- *VMS Workstation Video Device Driver Manual*
- *VMS Workstation Guide to Printing Graphics*
- *VMS Workstation Software SIGHT User's Guide*
- *Using the VMS Workstation Software Tektronix 4125® Emulator*

## Conventions

Unless otherwise noted, the following conventions are used in this manual in displaying examples and the requirements of user input to the system.

| Convention | Meaning |
|---|---|
| RETURN | This symbol indicates that you press the key marked RETURN. |
| CTRL/x | This symbol indicates that you must press the key labeled CTRL while you simultaneously press another key, for example, CTRL/C, CTRL/Y, CTRL/O. |
| Ellipsis<br>.<br>.<br>. | Vertical series of periods, or ellipsis, mean either that not all the data that the system would display in response to the particular command is shown or that not all the data a user would enter is shown. |
| file-spec, . . . | Horizontal ellipsis indicates that additional parameters, values, or information can be entered. |
| [Square brackets] | Square brackets indicate that the enclosed item is optional. (Square brackets are not, however, optional in the syntax of a directory name in a file specification or in the syntax of a substring specification in an assignment statement.) |
| Quotation marks | The term quotation marks is used to refer to double quotation marks ("). The term apostrophe is used to refer to a single quotation mark ('). |
| Italics | Italicized words indicate that you should supply a value. |

# 1 Introduction

## 1.1 VWS and Its UIS Interface

VMS Workstation Software (VWS) is a tightly coupled, kernel-based window system for the VAXstation. Its procedural interface, the User Interface Services (UIS), provides a high-level programming interface to the graphic subsystem designed and optimized for VAX workstations and the VMS operating system.

## 1.2 DECwindows

DECwindows is Digital's window-based, distributed application environment. DECwindows is based on the industry standard X Window System™ developed by Project Athena and the Laboratory for Computer Science at the Massachusetts Institute of Technology. DECwindows is a distributed, operating-system-independent window system compatible with X11 implementations across a wide variety of environments. DECwindows provides the standard X11 low-level interface as well as the industry standard application programming interface in its toolkit.

Digital is committed to assisting the migration from VWS to DECwindows. As part of this effort, a preliminary baselevel of a DECwindows/X11 server is included in VWS Version 4.2 for use on VMS Version 5.1 and Version 5.2 workstations.

**NOTE: It is not intended that you use this software for production work, because no performance issues have been addressed in relation to it. The sole purpose of this software is to provide current VWS users with a glimpse at the DECwindows environment and to enable limited DECwindows development while you continue to use VWS as your main window system.**

## 1.3 Virtual Workstation

The VWS DECwindows/X11 server provides a standard DECwindows device driver and server. This enables you to use a single UIS window as a virtual workstation. This UIS window provides a monochrome workstation environment that simulates the VS2000 workstation. It can be run on any workstation with both DECwindows and VWS installed.

**NOTE: For VMS Version 5.1, DECwindows is provided but must be installed separately. For VMS Version 5.2, DECwindows is installed automatically during VMS installation; VMS V5.2 requires no separate DECwindows installation.**

# 2 Overview of DECwindows/X11 Server

The following sections provide information on the installation, use, and requirements of the VWS DECwindows/X11 server.

## 2.1 Installing DECwindows/X11 Server

Before you install this software, make sure you have installed DECwindows on your workstation. DECwindows is provided with the VMS Version 5.1 (and later) software. For VMS Version 5.1, you must install DECwindows separately from VMS. (See the *VMS Version 5.1 Installation Guide*, Section 2.2, for DECwindows installation instructions.) You can install DECwindows on a workstation already running VWS without changing the window system.

On VMS Version 5.2 or later, DECwindows is installed automatically during VMS installation and is always available unless it is explicitly removed by the system manager.

NOTE: **DECwindows workstation device support must be installed. The programming environment is optional.**

To install the VWS DECwindows/X11 Server, perform the following steps:

1 Invoke VMSINSTAL as follows.

- If you are installing from a tape cartridge, enter the following command to invoke the VMSINSTAL command procedure:

```
$ @SYS$UPDATE:VMSINSTAL VWSDECW010 ddcu:
```

where:

ddcu: = tape unit name

- If you are installing from a diskette, locate the floppy labeled:

```
VMS/WS DECWM V1.0 BIN RX33 1/1
```

Enter the following command to invoke the VMSINSTAL command procedure:

```
$ @SYS$UPDATE:VMSINSTAL VWSDECW010 ddcu:
```

where:

ddcu: = disk unit name

2 Answer the questions asked by the procedure. A list of files installed by VWSDECW010 appears in Appendix A and a sample installation is provided in Appendix B.

CAUTION: **This kit will not install if you are running anything other than VMS Version 5.1 or 5.2.**

The installation procedure asks to verify that DECwindows has already been installed on your system. The installation adjusts some of the minimum requirements for SYSGEN parameters to enable DECwindows to operate. The installation performs AUTOGEN and (optionally) reboots the workstation.

### 2.1.1 Cluster Installation

Install the server just as you install a standalone system on the bootnode(s) for the cluster. Then, perform an AUTOGEN on each workstation that will be using the server. This sets the SYSGEN minimum parameters required to run the server.

## 2.2 Operation of the DECwindows/X11 Server

To start the VWS DECwindows/X11 server, invoke the standard DECwindows startup command files from the SYSTEM account. Generally, you do this as follows:

```
@SYS$MANAGER:DECW$STARTUP.COM
```

See the *VMS Version 5.1 or 5.2 Installation Guide*, Section 2.3, for more information on this procedure.

NOTE: **On VMS Version 5.2, the DECwindows startup file is always invoked during the system startup phase. The DECwindows startup procedures do not start the DECwindows/X11 Server for VWS unless you have already invoked the STARTVWS procedure. Thus, you must explicitly invoke the DECW$STARTUP procedure after STARTVWS has run.**

The server ensures that VWS has completed initialization prior to creating a VWS window. It checks to see that VWS is installed. You can perform the DECwindows startup at any time after STARTVWS has been invoked.

By default, the server window is full-screen with no border or banner. It provides the same screen geometry as the VS2000 workstation. Because it creates no border or banner, the default setup enables you to press and hold the Ctrl—Shift—Remove keys to shrink the window to a standard VWS icon.

You can make the server window smaller than full-screen with a border and banner. Also, you can use a number of provided options to tailor the environment. To set these options when the server is started, create a file named DECW$SERVER_DEVICE_SETUP_GV.COM in the SYS$MANAGER directory. A .TEMPLATE version of this file is provided in SYS$COMMON:[SYSMGR]. You can edit this file to tailor the environment.

The available options include:

- Initial state (icon/window)
- Window size (in pixels)
- Window border and banner
- Window banner text

- Initial window and icon placement
- Output operation batch count
- Initial keyboard state

## 2.3 Requirements for Operation of the DECwindows/X11 Server

### Operating System Version

This software will not install if you are running anything other than VMS Version 5.1 or 5.2.

### DECwindows Installation

If you are running VMS Version 5.1, you must make sure that DECwindows has already been installed on your system before you attempt to use the DECwindows/X11 Server.

# 3 VMS Overhead

## 3.1 CPU and Memory Requirements

DECwindows requires considerably more CPU and memory than VWS. When the server is in active use, it consumes a great deal of CPU and demands a great deal of memory. When the server is running but has no activity, it presents only additional memory demands. You can remove all the DECwindows resources except a small amount of memory for the DECwindows drivers by stopping the server as follows:

- Select DELETE from the menu icon, or
- Use the STOP command from DCL on the server process.

NOTE: **If the server is stopped before an initial login, it is possible that a batch job might execute periodically and attempt to start the session manager. You can stop this batch job by using the normal VMS batch control commands or by stopping the process while the job is active.**

## 3.2 Free Block Requirements

The VWS DECwindows/X11 server kit consumes less than 600 blocks of disk space. However, the DECwindows kit might require a great deal more. See the *VMS Version 5.1 or 5.2 Installation Guide* for more details on DECwindows disk requirements.

# 4 Restrictions

## 4.1 Function Keys F1 through F5

Because VWS dedicates LK201 function keys F1 through F5 to system functions, you cannot use these function keys for general applications. Under native DECwindows, on the other hand, you can use these function keys in application software.

## 4.2 Mouse and Keyboard Input

Both mouse and keyboard input use normal UIS program mechanisms and must simulate the input that DECwindows expects. Slight incompatibilities might exist.

## 4.3 LK201 Attributes

You cannot change LK201 attributes from the server. In other words, you cannot control LEDs from DECwindows, nor can you change autorepeat or any other LK201 characteristics. Also, you cannot cause the bell to ring.

NOTE: **To change many of these attributes, use the UIS Workstation Options menu.**

The server expects the keyboard to report the North American layout, but DECwindows software can translate to other country keyboard layouts.

## 4.4 Compose Sequences

To start a compose sequence in DECwindows, you must press the Compose Character key and space bar at the same time.

The Compose Character key is used as an "ALT" function shift key.

# 5 Using Native DECwindows

## 5.1 Window System

The window system is determined by the WINDOW_SYSTEM SYSGEN parameter.

- To select VWS, set WINDOW_SYSTEM to 2.
- To select native DECwindows, set WINDOW_SYSTEM to 1.

The STARTVWS command file simply reports the condition and exits when you set WINDOW_SYSTEM to 1. To set this parameter, boot interactively (B/1) and use the SET command in SYSBOOT.

## 5.2 Compatible SYSGEN Settings

The VWS/DECwindows kit installation should provide compatible SYSGEN settings to enable switching between window systems. If you do not plan to use VWS in favor of native DECwindows, invoke AUTOGEN to remove any excess VWS settings.

## 5.3 Tuning

If you regularly use AUTOGEN with the FEEDBACK option, the DECwindows/X11 Server, DECwindows, and VWS will run more efficiently.

# A Files Installed By VWSDECW010

VWSDECW010 installs the following files on your system:

```
SYS$SYSROOT:[SYSHLP]VWSDECW010.RELEASE_NOTES
SYS$SYSROOT:[SYSEXE]GVADRIVER.STB
SYS$SYSROOT:[SYS$LDR]GVADRIVER.EXE
SYS$SYSROOT:[SYSLIB]DECW$SERVER_DDX_GV.EXE
SYS$SYSROOT:[SYSMGR]DECW$DEVICE.COM
SYS$SYSROOT:[SYSMGR]DECW$SERVER_DEVICE_SETUP_GV.TEMPLATE
```

# B Sample Installation

```
Username: SYSTEM
Password:

        Welcome to VAX/VMS version V5.1

$ @sys$update:vmsinstal VWSDECW010 MUA0:

        VAX/VMS Software Product Installation Procedure V5.1

It is 28-MAY-1989 at 13:19.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.

* Do you want to continue anyway [NO]? y
* Are you satisfied with the backup of your system disk [YES]? y

  Please mount the first volume of the set on MUA0:
  Are you ready? y

%MOUNT-I-MOUNTED, VWS041 mounted on _MUA0:

The following products will be processed:

  VWSDECW V1.0

        Beginning installation of VWSDECW V1.0 at 13:19

%VMSINSTAL-I-RESTORE, Restoring product saveset A ...
%VMSINSTAL-I-RELMOVED , The product's release notes have been
        successfully moved to SYS$HELP.

                        VWS/DECwindows V1.0

                    Virtual Monochrome Frame Buffer Server

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* Do you want to purge files replaced by this installation [YES]? y


        This software must be installed AFTER the DECwindows device support
        has been installed.

* Has the DECwindows device support been installed [Y]? y

        This installation will run AUTOGEN to adjust a number of system
        parameters to allow DECwindows to run under VWS.  This kit should
        be reinstalled after any VWS installation since VWS will alter the
        parameters for AUTOGEN to values too small for DECwindows.

        You may wish to reboot your system after this procedure completes
        before starting VWS/DECwindows.

* Would you like to AUTOGEN with FEEDBACK [Y]? N
* Would you like to reboot after installation [Y]? N

        No more questions will be asked

        ** WARNING **

        The file SYS$COMMON:[SYSMGR]DECW$DEVICE.COM has been
        replaced to allow VWS/DECwindows startup in addition
        to native DECwindows startup.
```

```
        The file DECW$SERVER_DEVICE_SETUP_GV.TEMPLATE has been
        placed in SYS$COMMON:[SYSMGR] and can be used to tailor
        the DECwindows Workstation Window.

        Adjusting SYSGEN minimums to allow both VWS and DECwindows

        Performing AUTOGEN with NOFEEDBACK

%AUTOGEN-I-BEGIN, GETDATA phase is beginning.

%AUTOGEN-I-NEWFILE, A new version of SYS$SYSTEM:PARAMS.DAT has been
created.
        You may wish to purge this file.

%AUTOGEN-I-END, GETDATA phase has successfully completed.

%AUTOGEN-I-BEGIN, GENPARAMS phase is beginning.

%AUTOGEN-I-NOFEEDBACK, Feedback information will not be used in the
        subsequent calculations.

%AUTOGEN-I-NEWFILE, A new version of SYS$MANAGER:VMSIMAGES.DAT has been
created.

        You may wish to purge this file.

%AUTOGEN-I-NEWFILE, A new version of SYS$SYSTEM:SETPARAMS.DAT has been
created.

        You may wish to purge this file.

%AUTOGEN-I-END, GENPARAMS phase has successfully completed.
%AUTOGEN-I-BEGIN, GENFILES phase is beginning.
%AUTOGEN-I-NOCHANGE, No dump file modifications will be made.
%AUTOGEN-I-END, GENFILES phase has successfully completed.
%AUTOGEN-I-BEGIN, SETPARAMS phase is beginning.
%AUTOGEN-I-END, SETPARAMS phase has successfully completed.
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...

        Installation of VWSDECW V1.0 completed at 13:27

        VMSINSTAL procedure done at 13:28

$
$ lo
  SYSTEM       logged out at 28-MAY-1989 13:28:11.00
```

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